**MAFAC Comments and Recommendations on the NOAA Aquaculture Program and the Draft NOAA Fisheries Marine Aquaculture Strategic Plan, 2016 – 2020; Moving Marine Aquaculture Forward**

**Executive Summary**

The Marine Fisheries Advisory Committee (MAFAC) advises the Secretary of Commerce on living marine resource management. The National Oceanic and Atmospheric Administration (NOAA) requested MAFAC provide advice to NOAA Leadership on emerging issues related to marine aquaculture development. MAFAC established an Aquaculture Task Force (ATF) to expand its expertise.

The initial request focused on providing input into updating the NOAA Strategic Plan for Marine Aquaculture published in 2007 by working with the Office of Aquaculture (OOA) to review three items: a Progress Report on implementation of the 2007 10 Year strategic Plan, the draft Strategic Priorities for the new Plan and a draft of the new 5 Year Strategic Plan.

MAFAC and ATF developed findings in three areas: influential trends and seafood security, NOAA progress and accomplishments made since 2007, and recurring challenges faced by the NOAA Aquaculture Program to address in the new Plan. This MAFAC report highlights for NOAA consideration 11 Priority Concerns and Recommendations developed by the ATF and MAFAC. These briefly are:

- Move forward with establishing a Coordinated Permit Process for siting commercial aquaculture in federal waters of the Gulf of Mexico and begin processing permits.
- Define a timely and efficient, standardized permit pathway for all Regions to conduct short-term research projects and allow testing and demonstration of aquaculture technologies in the Exclusive Economic Zone (EEZ).
- Establish in the new Plan that NOAA Fisheries is the lead coordinating agency in the federal government for national marine aquaculture development and the Plan is the National Plan for marine aquaculture development.
- The marine aquaculture industry and the investment community are looking for strong positive support by NOAA for commercial farming in federal waters and the agency should embrace its leadership role and actively pursue implementation of the Plan.
- NOAA should take steps to reduce perceived aquaculture permitting conflicts with internal agencies involved in the permit review that delay timely action.
- Seek a strong positive support letter for marine aquaculture and the Plan from NOAA Leadership or the Secretary of Commerce to demonstrate industry development is an agency priority.
- Demonstrate NOAA Leadership's strong support of marine aquaculture by formally adopting the Plan as an agency-wide guidance document.
- The Strategic Plan needs more specific objectives, deliverables, and measurable outcomes to encourage accountability and facilitate its implementation and management.
- The Plan's target five year goal of at least 50% increase in production volume should be increased, as it assumes a status quo growth rate (continues the 8 % per year for the past five years) and is hopelessly unambitious, showing a lack of confidence in the industry and the Plan.
- The Plan and its volume production target fail to respond to the significant need for more domestic production and the opportunities and challenges described in the Plan and by its statistical presentations.
- Growth opportunities for marine finfish have the highest potential of any cultured product to reduce seafood imports and NOAA should fund a comprehensive marine finfish initiative to farm the federal waters.

MAFAC is pleased to provide these comments on marine aquaculture to NOAA as the U.S. prepares to meet the seafood supply challenges of the 21st Century.

**1.0 Introduction**

The Marine Fisheries Advisory Committee (MAFAC) advises the Secretary of Commerce on all aspects of living marine resources and their management. The National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce (USDOC) requested MAFAC to provide advice to NOAA Leadership on emerging issues related to marine aquaculture development and how NOAA Fisheries is fulfilling its aquaculture mission activities.

In response, MAFAC established an Aquaculture Task Force (ATF) in 2015 to expand its aquaculture expertise and provide informed input to NOAA on present and future activities of the Aquaculture Program. MAFAC has a recent history of urging USDOC and NOAA to increase domestic marine aquaculture production to diversify the economies of coastal states and address increasing seafood demand and rising imports. Notably the NOAA 10 Year Plan for Marine Aquaculture, published in 2007, was prepared at the request and with the assistance of MAFAC. It described the agency's long-term vision and action agenda for industry expansion.

Subsequently, MAFAC has repeatedly responded to requests for comments on aquaculture plans and policy statements, including: Vision 2020: The Future of U.S. Marine Fisheries (2007); NOAA Next Generation Strategic Plan (2010); NOAA Draft Aquaculture Policy (2011); National Ocean Policy Draft Implementation Plan (2012); FY 2013 Budget for Aquaculture (2012); Vision 2020, Charting a Course for the Future of U.S. Marine Fisheries (2012); and Recommendations on the Proposed Rule to Implement the Gulf Fishery Management Plan for Marine Aquaculture (2014). This effort continues the pattern.

**2.0 Aquaculture Task Force Creation and Process**

**2.1 Creation**

MAFAC began the process of Task Force creation by posting a 30-day notice requesting nominations in the Federal Register, October 16, 2014. After review and evaluation of the candidates, 11 highly qualified individuals were appointed on January 15, 2015 and began work. ATF members represent geographically diverse regions and wide ranging backgrounds, including research and academia, state and federal government, commercial farming, and the environmental community. Together, the members have well over 200 years of experience with U.S. and international marine aquaculture development.

**2.2 Process**

The initial task from NOAA to MAFAC ATF can be described as follows:

**TASK-** Provide input into updating the NOAA Strategic Plan by working with the Office of Aquaculture (OOA) to review a detailed Progress Report on implementing the 10 Year Plan for Marine Aquaculture, published in 2007. Provide input on the draft Strategic Priorities for the update of the 10 Year Plan. Review and provide comments on the draft updated NOAA Fisheries, Strategic Plan for Marine Aquaculture, 2016 to 2020.

According to NOAA, its aquaculture activities collectively known "informally as the NOAA Aquaculture Program," are conducted in three line offices: NOAA Fisheries (NMFS), Oceanic & Atmospheric Research (OAR) and the National Ocean Service (NOS) – each with distinct and complementary roles. The Office of

Aquaculture (OOA) is administratively located in NMFS headquarters and coordinates with the activities of the NOAA Aquaculture Program.

This report utilizes ATF's review and discussion of the NOAA Aquaculture Program and Strategic Planning efforts and subsequent MAFAC discussions, as a basis to provide Significant Findings and Priority Recommendations for NOAA consideration.

**3.0 Significant Findings: Influential Trends and Progress by the NOAA Aquaculture Program**

Over an 8 month period, ATF discussed and provided comments to OOA on: Strategic Priorities for the new Plan, a Progress Report covering implementation of the 2007 10 Year Plan for Marine Aquaculture and the Draft NOAA Fisheries Strategic Aquaculture Plan, 2016 to 2020. Ultimately, these discussions and comments were used to prepare findings that are highlighted below.

**3.1 Influential Trends and Seafood Security**

There are a number of global trends evident today that can significantly impact near-term and long-term U.S. seafood supplies and underscore the need for the current National Policy to expand domestic aquaculture production to enhance the nation's seafood security. Other reasons to expand commercial marine aquaculture include: increasing jobs and business opportunities in the seafood industry and helping maintain working waterfronts and coastal communities.

Perhaps the most impressive trend, according to the United Nations Food and Agriculture Organization, as global supplies from capture fisheries are level, is the emergence of global aquaculture as the source of product to meet future increases in seafood demand. In the U.S., this trend is apparent, with seafood imports currently making up 91% of supply – up from 86% in 2007 – with roughly half of the amount from aquaculture in developing countries. This has led to an annual seafood deficit of over $12 B. Notably, the U.S. is the number one or two seafood importer in the world, yet ranks 15$^{th}$ and is falling in aquaculture production.

**Note:** The 91% imports figure is not precise because significant amounts of U.S. caught fish are exported for processing and then come back to the U.S. as imported seafood and these values are difficult to determine. Further, it is noted U.S. fisheries are the best managed fisheries in the world and NOAA is actively working with the industry and the Regional Fishery Councils to increase landings to offset imports. One NOAA estimate done for MAFAC, indicates if the 59 stocks under management are rebuilt, then it could result in $800 M less imports or 4.4 % of the $18 B 2013 value; a small but significant impact considering the large amount of imported seafood.

Relying on imports to satisfy growing seafood demand comes with inherent short-term and long-term risks of occasional supply chain disruption due to other global trends that can impact availability and movement of seafood products around the world. To illustrate with a few examples:

- Projected increase in the global population, estimated at 9 billion people by 2050.
- Global climate change and its impacts on capture fisheries yields and critical fish habitat.
- Citification or the establishment and expansion of high population mega-cities around the world, altering the seafood import and export volumes from producer countries, particularly in Asia.
- Rising income levels and a growing middle class in Developing Countries that favor seafood in their diets will be able to attract and pay for supply.

- Emerging and recurring geopolitical conflicts that can suddenly disrupt the seafood trade, e.g., China, Russia and several countries in Southeast Asia.

### 3.2 U.S. Progress

With the publication of the 10 Year Plan in 2007, NOAA OOA identified priority areas and began implementation efforts. Resources available to the Program varied from year to year with significant fluctuations in the economy and Department budgets. Progress made by the NOAA Aquaculture Program was reviewed and a number of significant accomplishments are highlighted below. These and other results helped the marine aquaculture industry achieve an 8% average annual increase in production over the past five years; fueled by increases in salmon and shellfish production in state waters.

- The Aquaculture Office was institutionalized within NOAA and expanded to seven staff, including a full time Science Coordinator. In addition, OOA had a presence in each NMFS Region with the establishment of Regional Coordinator positions.
- Many valuable applied research projects on a wide variety of topics were funded by NOAA offices and their partners. Further, valuable technical reports and studies were published and meetings and workshops held, that framed opportunities and challenges to developing the industry.
- NOAA adopted a Marine Aquaculture Policy in 2011 that included detailed guidance for the Regions to plan, locate, and manage commercial aquaculture in federal waters under the authority of the Magnuson-Stevens Fishery Conservation and Management Act. NOAA followed up by preparing a Rule, currently in process, to implement the Gulf of Mexico Fishery Management Plan for Regulating Offshore Marine Aquaculture in the Gulf of Mexico.
- The Interagency Working Group on Aquaculture (IWG-A) established the Aquaculture Regulatory Task Force with NOAA as the chair under the National Science and Technology Council to work on permitting issues, including development of a Coordinated Permit Process for commercial aquaculture in the Gulf of Mexico Region and fulfill specific aquaculture milestones in the National Ocean Council's Implementation Plan.
- NOAA established, at MAFAC's recommendation, a comprehensive National Shellfish Initiative in 2011, with the goal of increasing bivalve shellfish populations in coastal waters through commercial production and conservation activities.
- NOAA played an important interagency leadership role with USDA in preparation of the National Strategic Plan for Federal Aquaculture Research (2014-2019).

### 3.3 Recurring Challenges

Despite the steady expansion of salmon and shellfish farming and the limited production of other marine finfish (entirely in state waters), the industry has made only modest progress in establishing commercial fish farming in federal waters. Review of the Progress Report, as well as discussions among well-informed Task Force members, identified a number of recurring challenges facing NOAA's Aquaculture Program, as the lead coordinating agency for national development. These important issues and others should be addressed by the new NOAA Fisheries Strategic Plan, if substantial growth in production is to be realized:

- Lack of strong and consistent top down, agency-wide commitment to implementing the goal and policy statements described in past NOAA planning and policy statements.

- Failure of NOAA to establish a process to issue any commercial aquaculture permits for finfish culture in federal waters, since publication of the 2007 10 Year Plan. However, several short-term permits for finfish research have been issued.
- Failure to adopt the Rule to implement a Coordinated Permit Process for the Gulf of Mexico FMP for marine aquaculture; an activity begun in 2003.
- Address the need to realign the OOA for greater focus on establishing commercial finfish farming in federal waters and create Program performance measures to assess progress.
- Address improvement of agency-wide understanding of the economic, social and environmental benefits and impacts of marine aquaculture using the best available science and up-to-date information.
- Greater effort to establish coordination and communication mechanisms that raise the effectiveness of all NOAA programs affecting marine aquaculture development.

**4.0 Priority Concerns and Recommendations**

MAFAC highlights for NOAA consideration the following Priority Concerns and Recommendations to address the most important issues raised during the review and discussion of the Aquaculture Program and the new 5 Year Strategic Plan. MAFAC applauds NOAA for engaging in this agency-wide planning process earlier than required. Clearly, in our fast changing world, even a five year planning horizon may be considered long-term.

The NOAA Fisheries Plan mixes elements of a strategic plan (i.e., Vision, Mission, Goals, Objectives, and Strategies) with elements of an implementation plan (i.e., actions/deliverables, timeframe for delivery, agency responsible). There was a general lack of specificity with many Plan statements, and performance measures and metrics to gauge results and judge outcomes were lacking. The Goal Statements describe important areas where significant success could eventually result in significant increases in commercial marine aquaculture production for America.

MAFAC understands the Plan's actionable items are a partial list of what the NOAA Program will be working on to achieve the goals. In general, the objectives, strategies and deliverables do try to address expansion of commercial farming, which should be the primary purpose of the Plan. However, an indication of the priority of the many deliverables would add substance.

These comments offer suggestions that could improve the capability of both the NOAA Program and the NOAA Fisheries Plan to achieve their desired outcome, "A robust U.S. marine aquaculture sector that creates jobs, provides sustainable seafood and supports healthy oceans." Additional concerns noted by MAFAC can be found in Attachment A. Attachment B provides MAFAC ATF's response to a hypothetical question, "How should OOA spend additional operating funds should they become available?" Attachment C provides ATF's suggestions for components of a proposed NOAA National Marine Finfish Aquaculture Initiative.

**Implement a Coordinated Permit Process and Issue Permits ASAP.**

**4.1 The Office of Aquaculture (OOA) and the NOAA leadership should continue to move forward with establishing a Coordinated Permit Process to issue permits for sites to conduct commercial farming in federal waters, i.e., complete the process begun by the Gulf of Mexico Fishery Management Council (GMFMC) in 2009**. This action should be followed by an agency-wide focus on facilitating the processing of any permit applications received by giving them priority for action. This proactive action is consistent with the task set for NOAA to create a coordinated model permit process under the National Ocean

Policy Implementation Plan. Without a reasonable permitting process to access suitable sites and expand commercial finfish production, Research, Development and Demonstration (RD&D) investments will have limited impact for public value and on industry growth. The nation will also lose future economic benefits from robust domestic production.

**4.2 NOAA should, in consultation with all the Fishery Management Councils, define an efficient, standardized permit process, e.g., using the Exempted Fishing Permit or Special Coral Reef Ecosystems Fishing Permit, for short-term aquaculture research projects to allow testing and demonstration of technologies in the EEZ.** Clearly, increased Research, Development and Demonstration activities will be necessary to drive the technological innovation for U.S. companies to be competitive and produce enough product to significantly reduce foreign imports.

**Demonstrated Strong and Consistent NOAA Leadership and Commitment.**

**4.3 The Strategic Plan is a NOAA Fisheries Plan focusing on the staffing and resources under the management of NOAA Fisheries and secondarily NOAA-wide, but for purposes of the Plan, there should be a clear and definitive statement in the Plan that NOAA and specifically NOAA Fisheries is the lead coordinating agency in the federal government, in consultation with other agencies, for national marine aquaculture development.** More importantly, the Plan is the National Plan for Marine Aquaculture Development. It will be the primary guide for development activities, with the concurrence of the Department of Commerce and NOAA leadership, for the next 5 years. Adoption of this leadership role by NOAA, underscores the intent of the reauthorized National Aquaculture Act of 1980, which clearly states it is national policy to encourage the development of aquaculture and this development is in the national interest.

**4.4 The U.S. industry and the investment community are looking for evidence of strong support by NOAA for marine aquaculture development in federal waters.** With the industry successes in state waters fueling growth rates of 20% to 30% per year and the many successes around the world, the stage is set to move aquaculture into the EEZ. NOAA is the agency within the federal government with the statutory mandates for economic development and environmental stewardship and broad scientific knowledge of the species, technologies and the ocean environment to lead this effort and it should embrace the challenge through strong endorsement and active implementation of the Plan in collaboration with other federal agencies.

**4.5 It is strongly recommended NOAA take steps to reduce perceived conflicts with processing aquaculture project permits that delay timely action by various offices and programs charged with resource management and protection.** NOAA needs to urge its various offices and programs to use Best Practices that involve the best available scientific evidence on the benefits and impacts of marine aquaculture, when commenting on permit applications and complying with existing statutes. There is an abundance of scientific evidence today for identifying and reconciling specific recurring issues that delay or entangle decision-making for marine aquaculture permits in state waters that can be extended to federal waters. Further OOA and the Regional Coordinators should be the points of contact for permit applicants having difficulties with the process and the system.

**4.6 Seek strong, positive endorsements of marine aquaculture and the Plan from the NOAA Fisheries Administrator, NOAA Administrator and/or the Secretary of Commerce that would immediately elevate the position and priority of fish farming in the Department and put the Plan on the "front burner."** An immediate action that could be carried out is to have a supportive letter introducing the Plan from the NOAA Administrator, similar to that in the Recreational Fishing Implementation Plan.

**4.7 Strong evidence of support of marine aquaculture leadership could be demonstrated by NOAA formally adopting the Strategic Plan as an agency-wide guidance document.** This would signal to all parts of NOAA that marine aquaculture is an important part of the Department's mission to stimulate economic development and support commerce, while protecting and sustainably utilizing the natural resources of the U.S. Additional benefits could include: formal recognition of the informal working relationship between the three informal components of the NOAA Aquaculture Program (NOAA Fisheries, NOS and OAR) and OOA would be formally recognized as the lead in the agency.

**Measuring Plan Progress and Outcomes**

**4.8 The Plan needs more specific objectives, deliverables, and measureable outcomes**. In short, you can't manage what you can't measure. Implementation would benefit greatly from adding reasonable metrics for measuring progress towards goals, objectives, and deliverables, so the agency and industry can judge success and make adjustments. Quantifying desired outcomes ingrains in the Plan a mechanism for accountability for the actions taken and investment of public funds, e.g., permit 5 commercial farms in 5 years. Further, NOAA should consider establishing an external panel from the aquaculture industry, academia, and state government to assist in developing Plan metrics, regularly reviewing progress in Plan implementation and any new initiatives and reporting to stakeholders and the public.

**4.9 The "target" for the Plan of at least 50% increase in marine aquaculture production volume in 5 years is a status quo growth rate (continuing the recent 8% per year average) fueled by near shore shellfish and salmon farming. This target goal or driver is much too conservative and should be much higher, e.g., ATF suggests at least two times the most current volume production for marine aquaculture by 2020.** It is understood the higher target may be considered ambitious, even with the potential activities in the Gulf, Western Pacific, and off California and with shellfish farming in state waters. However, NOAA sends a high profile message with this target that the agency lacks commitment to the goals and objectives in the new Strategic Plan. Further it indicates the Plan is not offering new approaches or catalysts that the agency has confidence will ramp up progress. This could foster lack of confidence in the entrepreneurs and investors who will create the industry.

**4.10 The Plan fails to respond proportionally to either the opportunities or challenges supported by statistics in the Setting the Stage section.** A clearer presentation of key statistics is needed to strongly support NOAA's arguments for continued government investment. To illustrate, calculations indicate a 50% increase in volume production of marine aquaculture would provide only 0.31% of annual U.S. seafood consumption based on a per capita consumption of 14.4 lbs. Both the production target and the NOAA implementation effort should be much greater to inspire the bold private investment to build the scale of industry needed to counter rising imports.

**A Marine Finfish Initiative**

**4.11 According to NOAA growth opportunities and market potentials for marine finfish production have the highest potential of all possible aquaculture products to help reduce seafood imports and NOAA should develop and fund a comprehensive initiative to establish commercial fish farming in the EEZ.** This could be generally modeled after and complementary to OOA's highly successful Shellfish Initiative and would clearly demonstrate NOAA's resolve to expand domestic marine aquaculture production. Suitable species and technologies exist or are emerging to drive expansion in all regions and potential farmers are waiting for a permit process. (See attachment B and C for more details)

**5.0 Conclusion**

MAFAC and its ATF are pleased to have the opportunity to provide these comments on the NOAA Aquaculture Program and the new 5 Year Strategic Plan for NOAA consideration. Should OOA staff wish to discuss any of these recommendations, as the Strategic Plan is finalized, MAFAC and ATF would be happy to assist.

Currently, commercial marine aquaculture plays a very small part in U.S. domestic seafood production and that reality must change to meet the emerging seafood supply challenges of the 21st Century. America has the largest Exclusive Economic Zone (EEZ) in the world and its potential for aquaculture is as yet untapped. NOAA Fisheries has taken a bold and forward-looking step and provided a detailed Plan that, with the changes and actions suggested by this report and strong, unequivocal Department of Commerce and NOAA support, could allow private industry the opportunity to begin to harvest that potential for the benefit of all Americans.

**Attachment A**
**MAFAC Aquaculture Task Force Membership**

1. Megan Davis, PhD
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   Harbor Branch Oceanographic Institute
   Florida Atlantic University

2. John Forster, PhD
   President
   Forster Consulting, Inc.

3. Joe Hendrix
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4. Gary Jensen, PhD
   National Program Leader for
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   U.S. Department of Agriculture

5. Jeff Lotz, PhD
   Director
   Thad Cochran Marine Aquaculture
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6. George Nardi
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7. Brian O'Hanlon
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   Open Blue Sea Farms, Inc.

8. Paul Olin, PhD
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9. Neil Anthony Sims, MS
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   Kampachi Farms, LLC

10. Lisa Tucker, MMA
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11. Paul Zajicek, MS
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**Attachment B**
**Additional MAFAC Concerns and Recommendations**

MAFAC ATF in its review of the NOAA Aquaculture Program and the new NOAA Strategic Plan for Marine Aquaculture, 2016 to 2020, identified 21 issues of concern. Subsequent discussion reduced the number to the Priority Concerns and Recommendations discussed in the body of the report. Attachment A lists five important additional concerns that did not make the Priority List, but members felt strongly about.

**Implement a Coordinated Permit Process and Issue permits ASAP**

**1. Review of the Draft Gulf Rule to implement the Fishery Management Plan for Regulating Offshore Marine Aquaculture in the Gulf of Mexico (FMP), currently in the final stages of adoption, raises a number of concerns about implementation and the need for further fine tuning after adoption.** These perceived potential issues include: a NOAA permit does not convey property rights like a conventional lease, term of the permit 10 years is to short to establish a profitable business, the process for securing the three required permits for a site will be inefficient, caps for farm production will limit individual farm size and unclear criteria for permit renewal will be a disincentive. NOAA should commit to making the necessary changes in the Rule and the FMP that are identified as major impediments to development.

**Marine Finfish and Other Initiatives**

**2. NOAA should include 2 or 3 high profile initiatives, including marine finfish, in the Plan and these should tie into the four strategic goals.** For example, permit 5 farms in the Gulf of Mexico in the next 5 years. These initiatives will provide some common threads throughout the Plan to guide: investment of agency funds; public and private sector research collaborations; requests for research proposals; and staff time allocations to selected objectives that lead to desired outcomes.

**Comments on the Draft Plan organization, content and language.**

**3. There are opportunities to increase the overall impact of the Plan on the aquaculture community and highlight its most important message; that developing marine aquaculture and fish farming in the EEZ is of great strategic importance to the future of U.S. seafood.** The language, while covering the topics, is uninspiring and the text has no sense of urgency that expanding fish farming should be a national priority and is in the public interest. Authors could use more proactive wording throughout the Plan and the tables. The strongest arguments for why industry development is important are lost in a few paragraphs and a figure showing aquaculture's growing importance could be complemented by one showing projections of the looming future seafood supply gap.

**4. The Plan should strive to be realistic in terms of the number of deliverables that can be accomplished and less aspirational.** The priorities in the plan are not clear and do not stand out. Are there too many priorities for the staff and budget available? Or on the other hand, not all the objectives and strategies from the four goals are in the deliverables and timetable and it's not clear why they were omitted.

**5. A clearer presentation of the key statistics is needed.** For example, how much seafood is consumed annually in the U.S. and what are the units? Are figures given in the Plan landed weight and value or edible weight and value? What product categories make up the seafood deficit? How much will the 50% production target reduce this? Answering these questions would add substance to the Plan.

**Attachment C**
**Proposed Priorities for Additional Aquaculture Funds**

The MAFAC Aquaculture Task Force (ATF) posed the following question to the NOAA Office of Aquaculture (OOA): "If the NOAA Office of Aquaculture was to receive 2 or 3 times their current line item budget, what activities would OOA prioritize to receive additional funding?" OOA responded by requesting ATF to provide input on what OOA's priorities should be with more marine aquaculture funding. The following are the results of the ATF discussions. The amount of **NEW** OOA funding recommended is $20 M a year for 5 years to quickly ramp up efforts.

**<u>Increased Targeted Research, Development and Demonstration (RD&D) Projects</u> – ATF's top priority is to target NEW funds for marine aquaculture in these R,D &D areas. ATF is especially interested in improvements in fish and shellfish farming technologies.**

- Increase the competitive grants programs for commercially relevant marine aquaculture and socio-economic studies to expand U.S. commercial aquaculture (competitive grants programs e.g., Sea Grant, Saltonstall-Kennedy, Small Business Innovation and Research).
- Fund, at the necessary level, the National Marine Fishery Services labs that have dedicated aquaculture programs.
- Create Cooperative Research and Development Agreements (CRADA) with existing public and private not-for-profit marine aquaculture laboratories to develop demonstration farms for marine fish aquaculture (onshore and offshore) with industry and other partners.
- Consult with industry to bring in experts from other nations to demonstrate the newest and greatest innovations from other parts of the world. Purchase equipment, if appropriate, to set up regional demonstration sites.
- Put in place an intramural competitive grants program for Regional Coordinators to: a) support the planning and execution of regional development, and/or b) address industry identified constraints for farmers accessing sites in federal waters and for sustainable, cost-effective farm operations.
- Create a multi-year marine finfish hatchery research program targeting 2 to 3 economically important species. This will support multi-disciplinary research teams at collaborating public or private research centers with the goal being transfer of technologies to the private sector for consistent production of millions of fingerlings that satisfy genetic and health requirements.
- Select a technologically feasible marine fish species to complete a commercial scale demonstration project (all aspects e.g., systems, feeds, harvest, production parameters, marketing).
- Partner with and selectively provide resources to the National Ocean Service, Coastal Aquaculture Planning and Environmental Sustainability Program, to expedite their "tools for rules" projects that are aimed at assisting coastal management agencies with informed aquaculture project management and the industry with site selection and application of Best Management Practices.
- Create a cost-share marine net pen environmental monitoring program in partnership with net pen facilities for the purpose of guiding and incentivizing the adoption of technologies and procedures to reduce the cost of conducting water quality and benthic impact monitoring required by EPA NPDES permits.

**<u>Offshore Marine Aquaculture:</u> ATF has identified this position as a top priority for NEW funds.**

- Create a dedicated position such as a Regulatory Specialist, to focus on working with involved agencies, Regional Coordinators, and the aquaculture industry to expedite and facilitate permit processes and implement regulatory clarity and efficiency directives in the Plan, including addressing misinformation in the media. In essence, define and develop a coordinated permit process for the Exclusive Economic Zone (EEZ) and not just the Gulf of Mexico.

**<u>Expand Outreach</u>**

- Focus outreach activities on the general public and all stakeholders to promote increased understanding of the U.S. marine aquaculture industry, its goals and societal benefits, and increase broad support from decision-makers at all levels of government and the public. This will be accomplished by utilizing every media avenue possible: news articles, press releases, videos, Internet and social media technologies
- Survey the agencies that impact marine aquaculture permitting to determine their questions and significant concerns over development of the commercial offshore industry. Follow up with information and actions that address the questions and concerns.

**<u>NOAA Marine Finfish Aquaculture Initiative:</u> ATF identified implementing this initiative, described in more detail in Attachment C, as a top priority for NEW funds.**

- Implement a NOAA Marine Finfish Aquaculture Initiative comparable in concept to the Shellfish Initiative and supported by **NEW** funding of $10 M dollars a year (of the $20 M in **NEW** funding) depending on the increase for research, development and demonstration projects. This compliments the existing Shellfish Initiative. This should include a research agenda guided by the National Research Plan and suggested by an industry/academic advisory group that meets once a year to review progress and suggest directions. Partnering between interested and capable federal, state and private lab facilities and scientists should be encouraged for a coordinated, multi-approach method to address the bottlenecks for economically and regionally important species.

**Attachment D**
**Outline for a Proposed National Marine Finfish Aquaculture Initiative**

**1.0 Purpose:** Recognizing the critical importance of domestic finfish production for national seafood security, ocean health, and consumer welfare, MAFAC and its Aquaculture Task Force (ATF) recommend that NOAA consider establishing with **NEW** funding a 5 year National Marine Finfish Aquaculture Initiative, as part of increasing investments nationwide in commercial marine aquaculture development.

**The Goal of the initiative is to: Increase sustainable total commercial marine finfish production to two times the current production volume for salmon in five years - increase the current value of 43 M lbs. for salmon only to 86 M lbs. for all cultured marine finfish species - by encouraging farming in state and federal waters.**

The following annotated outline describes a list of benefits, priority actions and target outcomes for the Initiative.

**2.0 Potential Benefits to the Nation:** MAFAC recognizes a broad suite of economic, social and environmental benefits from expanding offshore marine finfish farming that include:

- Increasing the seafood security of the U.S.
- Increasing jobs and business opportunities in the domestic seafood industry.
- Meeting the growing demand for domestically produced seafood.
- Providing seafood that meets the highest standards of food safety.
- Improving the quality, freshness and availability of seafood for U.S. consumers.
- Helping maintain working waterfronts, particularly in areas where commercial fisheries have been reduced by declining stocks or increased regulation.
- Increasing the capacity and capability to carry out marine stock enhancement for selected species.

**3.0 Essential Components of a Five Year National Marine Finfish Aquaculture Initiative:** The MAFAC ATF developed this list of essential components for an effective Initiative.

**3.1 An efficient and predictable permitting process for commercial aquaculture in federal waters.**

Despite numerous and well-crafted NOAA policy and planning documents supporting development of commercial marine aquaculture in federal waters, there are no commercial fish farms operating today.

**Action:** NOAA should complete the adoption of the Rule to implement the Gulf of Mexico Fishery Management Plan for Marine Aquaculture and complete the establishment of the Coordinated Permit Process to efficiently be able to issue permits to commercial projects.

**Action:** NOAA should actively facilitate other Regional Fishery Management Council's, e.g., the Western Pacific Fishery Management Council, in formulating and adopting FMP's that permit commercial aquaculture in the Region.

**3.2 Provide site planning and permitting assistance to the industry.**

Gathering relevant information and preparing the permit application and environmental assessment is a formidable and complex task for a farmer to undertake.

**Action:** NOAA should provide assistance to permit applicants to help choose the best sites by providing expert input into preliminary site planning at the pre-application phase and access to government environmental data in GIS and other formats. A key agency to assist is the National Ocean Service.

**Action:** NOAA should formally task NMFS Regional Aquaculture Coordinators to work closely with the Office of Aquaculture on development in the Region and be the first point of contact and assistance for potential commercial projects in federal waters.

**3.3 Fund focused research, development and demonstration projects to advance commercial marine fish aquaculture.**

Currently, there are a variety of research grant programs, both extramural and intramural, that can further increase the knowledge base for marine aquaculture.

**Action:** Of the $20 M in **NEW** money recommended in Attachment B, NOAA should provide $10 M a year for 5 years to focus on marine finfish aquaculture research identified by industry and the National Aquaculture Research and Development Strategic Plan.

**Action:** Two important research areas that should be emphasized are: hatchery technologies and large-scale commercial demonstration projects for economically important species.

**3.4 Increase coordination and oversight of the components of the NOAA Aquaculture Program to improve effectiveness.**

NOAA aquaculture efforts are scattered among three main agencies: NOAA Fisheries, Oceanic and Atmospheric Research and the National Ocean Service, making coordination and Program focus a challenge.

**Action:** NOAA should develop a coordinated national research and development program utilizing the most active researchers and laboratories in the federal and state government, at universities, and in the private sector to address priority bottlenecks for commercial marine aquaculture development.

**Action:** NOAA should establish a multi-disciplinary industry-state-university advisory panel to meet once a year to provide input, oversight and review of progress for the Marine Finfish Aquaculture Initiative.

**Action**: NOAA should actively facilitate partnering between interested federal, state, university, and private laboratory facilities and scientists by using Cooperative Research and Development Agreements.

**Action:** NOAA should organize an annual Marine Finfish Aquaculture Initiative Forum where participating organizations and scientists can get together to share research results, identify new problems and develop new collaborations.

**4.0 Targeted Initiative Outcomes in Five Years: MAFAC ATF has formulated these specific target outcomes as recommended performance measures and to encourage accountability for the action items listed above.**

- **Outcome 1** - There are five sited and operating commercial fish farms in the Gulf of Mexico.
- **Outcome 2** - The Western Pacific Region has successfully amended its FMP's to permit commercial marine aquaculture and has three fish farm projects in the permit process.
- **Outcome 3 –** Other Regions with interest in developing commercial finfish aquaculture in federal waters have begun the process of developing or amending their FMP's.

- **Outcome 4** – The Rule implementing the Gulf of Mexico FMP has been amended by the Council and NOAA to remove disincentives and streamline the process, including having a permit for species not managed by the Council.
- **Outcome 5** – There have been established in the Gulf Region and other regions with development activity, an accessible, user friendly GIS data base to help site farms in federal waters.
- **Outcome 6** – With the growing success of the industry, the Office of Aquaculture has increased its operating budget for marine aquaculture to $50 M a year for existing and new staff and research and development grant support (intramural and extramural projects); with a major focus on technology improvements and critical biological impediments affecting commercialization (e.g., physiological, genetic, and disease management).
- **Outcome 7** – There exists a dynamic NOAA Marine Finfish Aquaculture Initiative network of active researchers and laboratories addressing commercial bottlenecks and improving species and production technologies.
- **Outcome 8** – In each region with commercial marine aquaculture there has been developed commercial-scale, hatchery technologies for at least three new economically important species.